

IN THE CLAIMS:

Please amend claims 1-4, 6-10 and 12, and cancel claims 5, 11, 13 and 14 without prejudice and add new claims 15-34 as follows:

IN THE CLAIMS:

1. (Currently amended) A vehicle navigation system, comprising:
 - a map-data-memory for storing unit adapted to store map data;
 - an input unit ~~including a route guide module, in which a user inputs adapted to obtain information and/or designates a travelling path, whereby the route guide module provides information on a route from an entrance road of a car to an exit road from related to an intersection that the vehicle approaches;~~
 - a GPS receiver ~~including a positioning module for unit adapted to~~ detecting a present position of the car ~~on the basis of vehicle based on~~ position information provided from at least one GPS satellite;
 - a Gyro-sensor ~~for unit adapted to~~ detecting a rotation angle of direction in which the car vehicle is travelling;
 - a controller, ~~which adapted to~~ uses the map data from the map-data-memory unit, route-information related to the intersection from the input unit, information related to the present position of the vehicle from the GPS receiver about the present position of the car unit, and route-direction information from the Gyro-sensor, ~~for generating the configuration unit in order to generate a map of an the intersection the user is supposed to enter and an arrow indicating a driving route to the user, an indication of the vehicle's progression along a road approaching the intersection and at least one road departing the intersection and for displaying a progression rate of the car along the an arrow indicating a suggested route for approaching and departing the intersection;~~
 - and
 - a display driving-unit ~~for adapted to~~ displaying the configuration map of the intersection, the indication of the vehicle's progression and the arrow ~~for route-guidance~~

on the basis of output data from the controller, and for performing a graphic operation on the configuration, whereby a gradual progression rate of the car is indicated in the directional arrow,

wherein the controller is adapted to generate the indication of the vehicle's progression by one of gradually filling the arrow with color and gradually removing color from the arrow.

2. (Currently amended) The navigation system according to claim 1, wherein the map data ~~includes~~ comprises a plurality of nodes and links and configuration points, namely latitude/longitude coordinates, composing for generating the complicated map of the intersection.

3. (Currently amended) The navigation system according to claim 1, wherein the controller is further adapted to control the display unit such the road approaching an entrance link of the car in the intersection, the entrance link being extracted from the map data memory, is headed up aligned vertically with true North.

4. (Currently amended) The navigation system according to claim 3, wherein the controller is further adapted to calculate a when the entrance link of the car in the intersection is headed up, calculations of relative angles between a travelling direction of the road approaching the intersection car and other the at least one roads connected to departing the intersection are derived from a table of trigonometric function.

5. (Canceled)

6. (Currently amended) The navigation system according to claim 4, wherein the ~~travelling controller is further adapted to indicate the suggested route for the car is expressed~~ by links connecting the plurality of nodes.

7. (Currently amended) The navigation system according to claim 1, wherein the controller is further adapted to generate a head of the arrow points at a start node of the exit link getting out of the complicated intersection, thereby indicating such that the arrow indicates from which direction the user vehicle approaches the intersection comes and for in which direction the user vehicle is travelling heading.

8. (Currently amended) ~~An~~ operating method of a vehicle navigation system, comprising the steps of:

obtaining information about related to an complicated intersection that the vehicle approaches;

obtaining information related to a present position of the vehicle;

obtaining information related to the direction in which the vehicle is travelling;

and

calculating heading up and screen coordinates;

displaying a map of the complicated intersection, an indication of the vehicle's progression along a road approaching the intersection and at least one road departing the intersection and an arrow indicating a suggested route for approaching and departing the intersection based on the screen coordinates being converted;

displaying a route that passes through the complicated intersection; and

gradually changing the colour of the route to be correspondent to a present position of the car, thereby indicating a present position of the car on the route,

wherein the controller is adapted to generate the indication of the vehicle's progression by one of gradually filling the arrow with color and gradually removing color from the arrow.

9. (Currently amended) The method according to claim 8, wherein displaying to the map of the intersection comprises obtaining the configuration of the complicated intersection based on information about the complicated intersection, data comprising a

plurality of nodes, links, and latitude/longitude coordinates of the intersection-being ahead, and the true north direction are obtained from a map data memory of the navigation system.

10. (Currently amended) The method according to claim 8, further comprising wherein calculating a relative angle between heading up and screen coordinates is performed on the road approaching the intersection basis of information input to a controller of the navigation system and the at least one road heading up is performed by rotation with centering around a connection node of an entrance link, and the screen coordinates is performed by converting absolute latitude/longitude coordinates to departing the screen coordinates of the car intersection.

11. (Canceled)

12. (Currently amended) The method according to claim 11, wherein to displaying the map of the intersection comprises the travelling direction in aligning the road approaching the intersection, node information stored in a map data memory is extracted and a with true north-North direction value of the entrance road is calculated to perform heading up and to convert latitude/longitude coordinates stored in a database to screen coordinates.

13. (Canceled)

14. (Canceled)

15. (New) The navigation system according to claim 8, wherein displaying the suggested route comprises generating a head of the arrow such that the arrow indicates from which direction the vehicle approaches the intersection and in which direction the vehicle is travelling.

16. (New) The navigation system according to claim 2, wherein the map data comprises at least one of latitude and longitude coordinates of the intersection.

17. (New) A vehicle navigation system, comprising:
a memory unit adapted to store map data;
an input unit adapted to obtain information related to an intersection that the vehicle approaches;
a GPS unit adapted to detect a present position of the vehicle based on information from at least one GPS satellite;
a sensor unit adapted to detect a direction in which the vehicle is travelling;
a controller adapted to use map data from the memory unit, information related to the intersection from the input unit, information related to the present position of the vehicle from the GPS unit and direction information from the sensor unit in order to generate a map of the intersection and an arrow, the map indicating a road approaching the intersection and at least one road departing the intersection and the arrow indicating the vehicle's progression along a suggested route for approaching and departing the intersection; and
a display unit adapted to display the map of the intersection and the arrow, wherein the controller is adapted to generate the indication of the vehicle's progression by one of gradually filling the arrow with color and gradually removing color from the arrow.

18. (New) The navigation system according to claim 17, wherein the map data comprises a plurality of nodes, links and configuration points for generating the map of the intersection.

19. (New) The navigation system according to claim 18, wherein the map data comprises at least one of latitude and longitude coordinates of the intersection.

20. (New) The navigation system according to claim 18, wherein the controller is further adapted to indicate the suggested route by links connecting the plurality of nodes.

21. (New) The navigation system according to claim 17, wherein the controller is further adapted to control the display unit such the road approaching the intersection is aligned vertically with true North.

22. (New) The navigation system according to claim 17, wherein the controller is further adapted to calculate a relative angle between the road approaching the intersection and the at least one road departing the intersection.

23. (New) The navigation system according to claim 17, wherein the controller is further adapted to generate a head of the arrow such that the arrow indicates from which direction the vehicle approaches the intersection and in which direction the vehicle is travelling.

24. (New) A method of vehicle navigation, comprising:
obtaining information related to an intersection that the vehicle approaches;
obtaining information related to a present position of the vehicle;
obtaining information related to the direction in which the vehicle is travelling; and
displaying a map of the intersection and an arrow, the map indicating a road approaching the intersection and at least one road departing the intersection and the arrow indicating the vehicle's progression along a suggested route for approaching and departing the intersection,

wherein the controller is adapted to generate the indication of the vehicle's progression by one of gradually filling the arrow with color and gradually removing color from the arrow.

25. (New) The method according to claim 24, wherein displaying the map of the intersection comprises obtaining data comprising a plurality of nodes, links and latitude/ longitude coordinates of the intersection.

26. (New) The method according to claim 24, further comprising calculating a relative angle between the road approaching the intersection and the at least one road departing the intersection.

27. (New) The method according to claim 24, wherein displaying the map of the intersection comprises vertically aligning the road approaching the intersection with true North.

28. (New) The navigation system according to claim 24, wherein displaying the suggested route comprises generating a head of the arrow such that the arrow indicates from which direction the vehicle approaches the intersection and in which direction the vehicle is travelling.

29. (New) A method of vehicle navigation, comprising:
generating a map of an intersection that a vehicle approaches;
generating a first indication of a suggested route for approaching and departing the intersection, the first indication displayed on the map of the intersection; and
displaying a present position of the vehicle on the first indication,
wherein displaying the present position of the vehicle on the first indication comprises displaying a second indication of the vehicle's progression on the first indication by one of gradually filling the first indication with color and gradually removing color from the first indication.

30. (New) The method according to claim 29, wherein the first indication comprises an arrow.

31. (New) The method according to claim 30, wherein the arrow indicates the vehicle's progression along the suggested route.

32. (New) A vehicle navigation system, comprising:

a controller adapted to generate a map of an intersection that a vehicle approaches and a first indication of a suggested route for approaching and departing the intersection; and

a display unit adapted to display the first indication on the map of the intersection and a present position of the vehicle on the first indication,

wherein the controller is adapted to generate a second indication of the vehicle's progression by one of gradually filling the first indication with color and gradually removing color from the first indication.

33. (New) The system according to claim 32, wherein the first indication comprises an arrow.

34. (New) The system according to claim 33, wherein the allow indicates the vehicle's progression along the suggested route.